

Suggested Revisions to the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*

Thank you for the opportunity to make suggestions on this very important topic of revising the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (P&G). We, Dr. Mark R. Burton and Dr. Larry G. Bray, are employees of the Center for Transportation Research at the University of Tennessee.

The National Academy of Public Administration was tasked with the job of helping the U.S. Army Corps of Engineers (Corps) better prioritize its funding decisions, especially as regards construction expenditures. The Academy document is *Prioritizing America's Water Resources Investments: Budget Reform for Civil Works Construction Projects at the U.S. Army Corps of Engineers*. Among other things, the Academy argues that the Corps has over emphasized benefit-cost analysis as the key factor in project prioritization and has paid insufficient consideration to human safety and environmental benefits and costs. It is noted that “(t)his tendency mirrors the heavy focus on economic development in the 1983 P&G.” (Academy of Public Administration, page 27). Most, likely the authors are referring to shippers savings which forms the basis of net benefits calculations.

While the Academy is focused on major risk-based episodes such as the Katrina Hurricane and ecosystem restoration, environmental advantages of water transportation have been noted and documented, for example by Chatterjee et. al., (“The Impact of Increased Truck Traffic Due to Chickamauga Lock Closure”, 2001, *Transportation Research Record*, Transportation Research Board). We attempt to expand on the spirit of the Academy recommendations and concentrate on the human safety and environmental benefits and costs that occur from **modal shifts** in traffic from barge to overland transportation or vice versa. Barge transportation generally is more fuel efficient than either rail or truck carriage, is a safer transportation mode, and moving commerce by barge avoids the increasing congestion on our nation's road network. A case can be made that each of these aspects of river transportation is a National Economic Development (NED) benefit and should be treated as such. We refer to these impacts on society as externalities or social costs.

Having been involved in navigation lock studies on the Tennessee River for the Tennessee Valley Authority (TVA) and on-contract to the Corps on other studies, we are intimately familiar with the methodology required by the P&G, including the calculation of “shipper savings” which is the basis for all of these studies. We are also familiar with the potential public safety and environmental costs that can occur as a result of the deterioration of the nation’s navigation infrastructure. In the Chickamauga Lock study, it became apparent that, if the lock was closed by TVA for safety reasons, navigation on the upper Tennessee River would end, and much of the traffic would divert to truck transportation with routings through Chattanooga, Tennessee on the already congested I-75 corridor. Thus, one benefit of maintaining navigation on the Tennessee River was to avoid the shift in traffic from barge to truck delivery. We calculated the social costs of this modal diversion, but our work was not considered for incorporation into NED benefits calculation because the P&G do not explicitly address externalities. In our study, categories of societal costs were increased highway damage, air pollution, crashes, time in transit, and incidents such as lane closings due to truck breakdowns.

If the Chickamauga study was a federal or state highway project, then the guiding document would be the American Association of State Highway and Transportation Officials (AASHTO) *User Benefit Analysis for Highways*, August 2003 (the *Red Book*). This document not only requires the incorporation of externalities into net benefits calculations, but also lays out the methodology to guide the user in making the calculations. Thus, the user is faced with two defining documents when doing watershed planning: the *Principles and Guidelines* for water projects and the *Red Book* for highway projects.

We therefore request that the Corps include language in the revision that explicitly requires monetary values of modal shift externalities to be included in net benefits calculations. We request first that the Corps commission a study to determine which externalities are NED benefits, and then determine how the various externalities should be calculated. Economists are not in universal agreement on either matter. We request that, at a minimum, the Red Book methodology should be used to quantify externality values, but that analysts are given the flexibility to use other techniques if

appropriate. Independent technical review, as always, would assure conformance to the standards set in the revised Guidelines.

Thank you for allowing us to give you our thoughts on this very important matter.

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